

CHAPTER XI

THE FLOATING PRINCIPLE AS APPLIED TO FIXTURE WORK

There are many instances in the design and construction of fixtures for machine tool equipment work that require application of the floating principle in order to make them thoroughly efficient. When thin castings are to be handled, the application frequently takes the form of a system of floating clamps, which are arranged in such a way that pressure sufficient to hold the work can be applied without danger of distorting it. It may also be necessary to have the locating points so designed that they too will float to a certain extent so as to adapt themselves to varying conditions. The latter application may be necessary when rough castings are to be machined, so that inequalities in the work will not affect the location in the jig or fixture. Abnormal or extraordinary conditions sometimes require the application of the floating principle to the location of work which has two or more finished surfaces in different planes.

The nature of the castings for which the fixtures are designed has a strong influence on their construction, and the type of machine tools on which they are to be used is also a prominent factor in the design. The accuracy required in the finished product, and the number of pieces to be machined, must also be considered in connection with the design.

Fixtures of this kind may be adapted for work on various kinds of machine tools, such as drill presses, milling machines, lathes (turret and engine types), boring mills, or grinding machines. All of these require fixtures of somewhat different construction, according to the machines on which they are to be used, and the purpose for which they are intended.

It is practically impossible to cite examples of every kind of device to which the floating principle can be applied, but typical